Message

From: Kirk, Cassandra [kirk.cassandra@epa.gov]
Sent: 1/2/2020 8:17:04 PM
To: Bohnenblust, Eric [Bohnenblust.Eric@epa.gov]
Subject: RE: Tet-tTAV binding complex

Thanks, this is why I like to ask questions ☺

Cassie

From: Bohnenblust, Eric <Bohnenblust.Eric@epa.gov>
Sent: Thursday, January 2, 2020 2:19 PM
To: Wozniak, Chris <wozniak.chris@epa.gov>; Kirk, Cassandra <kirk.cassandra@epa.gov>; Striegel, Wiebke <Striegel.Wiebke@epa.gov>; Pierce, Amanda <pierce.amanda@epa.gov>; Kough, John <Kough.John@epa.gov>; Milewski, Elizabeth <Milewski.Elizabeth@epa.gov>
Subject: RE: Tet-tTAV binding complex

Tetracycline in citrus is no longer under a section 18, but is a section 3 registered use on EPA Reg. Nos. 80990-1, and 55146-97. I've copied the restrictions directly from the label below.

Application Restrictions-All Uses: x Not to be used for medical, veterinary or human purposes. x Not for residential use. x Do not apply this product through any type of irrigation system, including chemigation. x Do not apply this product by aerial application. x Animal grazing in treated areas is prohibited. The public must be notified by posting restriction signs along the perimeter of the treatment area. x Use only the specified and full-strength application rates. x Do not apply oxytetracycline in orchards in which the soil has been fertilized with animal waste/manure or human biosolids. x Do not apply more than two consecutive applications before alternating with another fungicide/bactericide of a different mode of action. x Spray Drift Precaution - ALL uses - to help reduce off-target drift, direct spray into the canopy, and turn off outward pointing nozzles at row ends and when spraying outer rows.

Eric Bohnenblust, Ph.D
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Emerging Technologies Branch (ETB)
Biopesticides and Pollution Prevention Division (BPPD)
Phone: 703-347-0426
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From: Wozniak, Chris <wozniak.chris@epa.gov>
Sent: Thursday, January 2, 2020 2:07 PM
To: Kirk, Cassandra <kirk.cassandra@epa.gov>; Striegel, Wiebke <Striegel.Wiebke@epa.gov>; Pierce, Amanda <pierce.amanda@epa.gov>; Bohnenblust, Eric <Bohnenblust.Eric@epa.gov>; Kough, John <Kough.John@epa.gov>; Milewski, Elizabeth <Milewski.Elizabeth@epa.gov>
Subject: RE: Tet-tTAV binding complex

One more thing to consider, the mantra has been the Aedes aegypti requires relatively clean water for oviposition and larval rearing. Do we know if female aegypti would use a septic tank to lay their eggs?

Chris

Chris A Wozniak, Ph.D.
Biotechnology Special Assistant

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From: Kirk, Cassandra <kirk.cassandra@epa.gov>
Sent: Thursday, January 02, 2020 1:38 PM
To: Wozniak, Chris <wozniak.chris@epa.gov>; Striegel, Wiebke <Striegel.Wiebke@epa.gov>; Pierce, Amanda <pierce.amanda@epa.gov>; Bohnenblust, Eric <Bohnenblust.Eric@epa.gov>; Kough, John <Kough.John@epa.gov>; Milewski, Elizabeth <Milewski.Elizabeth@epa.gov>
Subject: RE: Tet-tTAV binding complex

Thanks Chris,

Ex. 5 Deliberative Process (DP)

Thanks!
Cassie

From: Wozniak, Chris <wozniak.chris@epa.gov>
Sent: Tuesday, December 31, 2019 1:20 PM
To: Kirk, Cassandra <kirk.cassandra@epa.gov>; Striegel, Wiebke <Striegel.Wiebke@epa.gov>; Pierce, Amanda <pierce.amanda@epa.gov>; Bohnenblust, Eric <Bohnenblust.Eric@epa.gov>; Kough, John <Kough.John@epa.gov>
Subject: RE: Tet-tTAV binding complex

Hi Cassie,

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Ex. 5 Deliberative Process (DP)

Ex. 5 Deliberative Process (DP)

Chris

Arch Environ Contam Toxicol. 2002 Apr;42(3):263-71.

Toxicity of tetracyclines and tetracycline degradation products to environmentally relevant bacteria, including selected tetracycline-resistant bacteria.

Halling-Sørensen B[1], Sengeløv G, Tjørnelund J.
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Section of Environmental Chemistry, Dept. of Analytical and Pharmaceutical Chemistry, Royal Danish School of Pharmacy, Universitetsparken 2, DK-2100 Copenhagen, Denmark. bhs@dfh.dk

Abstract

Tetracyclines used in veterinary therapy invariably will find their way as parent compound and degradation products to the agricultural field. Major degradation products formed due to the limited stability of parent tetracyclines (tetracycline, chlortetracycline, and oxytetracycline) in aqueous solution were theoretically identified at various environmental conditions, such as pH, presence of chelating metals, and light. Their potency was assessed on sludge bacteria, tetracycline-sensitive soil bacteria, and tetracycline-resistant strains. Several of the degradation products had potency at the same concentration level as tetracycline, chlortetracycline, and oxytetracycline on both the sludge and the tetracycline-sensitive soil bacteria. Further, both 5a,6-anhydrotetracycline and 5a,6-anhydrochlortetracycline had potency on tetracycline-resistant bacteria supporting a mode of action different from that of the parent compounds.

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From: Kirk, Cassandra <kirk.cassandra@epa.gov>
Sent: Monday, December 30, 2019 5:34 PM
To: Striegel, Wiebke <Striegel.Wiebke@epa.gov>; Pierce, Amanda <pierce.amanda@epa.gov>; Bohnenblust, Eric <Bohnenblust.Eric@epa.gov>; Wozniak, Chris <wozniak.chris@epa.gov>; Kough, John <Kough.John@epa.gov>
Subject: Tet-tTAV binding complex

Hello there,

In reviewing the study "Dose Response of Hemizygous *Aedes aegypti* OX5034 to Tetracyclines And Effects of Environmental Exposure to Tetracycline", it occurred to me that while they tested analogues, there is no mention of whether or not the binding of tet degradates was ever assessed. I can't find any information regarding the biochemical details of the tet-tTAV binding complex to know whether looking at the binding of any tet residues has relevance. Does anyone have any insight regarding this issue? If the degradates do bind, it has relevance because they are more stable in water as compared to tetracycline.

Thanks!
Cassie